

The Parking Lot Problem¹

The owner of a paved, 100-ft-by-200-ft, corner parking lot in a New England town hires you to design the layout, that is, to design how the “lines are to be painted.”

You realize that squeezing as many cars into the lot as possible leads to right-angle parking with the cars aligned side by side. However, inexperienced drivers have difficulty parking their cars this way, which can give rise to expensive insurance claims. To reduce the likelihood of damage to parked vehicles, the owner might then have to hire expert drivers for “valet parking”. On the other hand, most drivers seem to have little difficulty in parking in one attempt if there is a large enough “turning radius” from the access lane. Of course, the wider the access lane, the fewer cars that can be accommodated in the lot, leading to less revenue for the parking lot owner.

A couple of things about this project:

- As with most “real-world” projects, there is a component of research that is necessary to get started. Knowing car width and length (or even parking spot width and length) is essential and requires some searching, potentially for a variety of car types (i.e., full-size vs. compacts). Similarly for turning radius.
- Along with research comes references and in-text citations. Be certain to cite your sources for any data you use in your write-up.
- As we get longer project results, a table of contents may be useful. Do some initial research into \LaTeX ’s handling of Table of Contents or Table of Figures.

¹Project courtesy of *Consortium for Mathematics and Its Applications, contest problem 1987*.